

FIG.1A

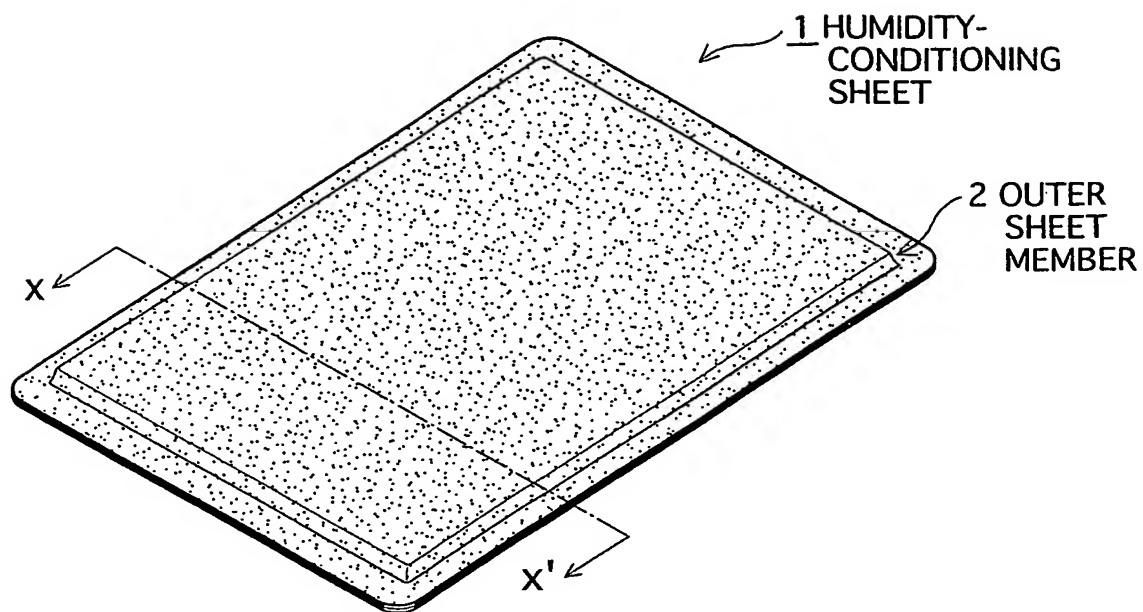
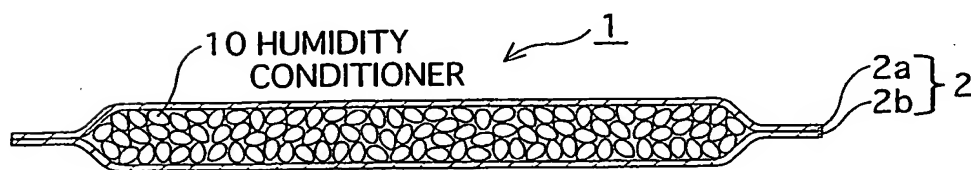


FIG.1B



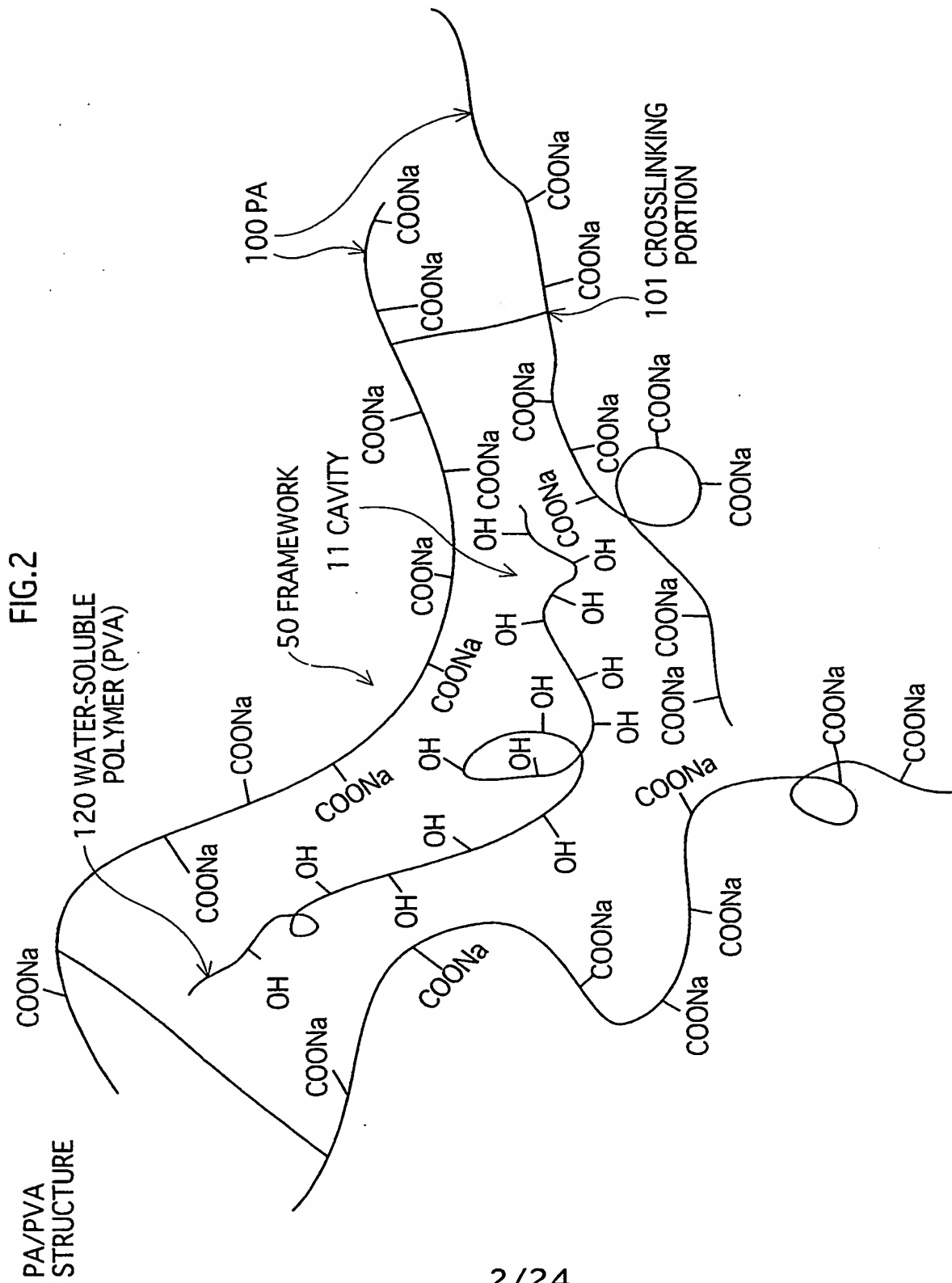


FIG.3

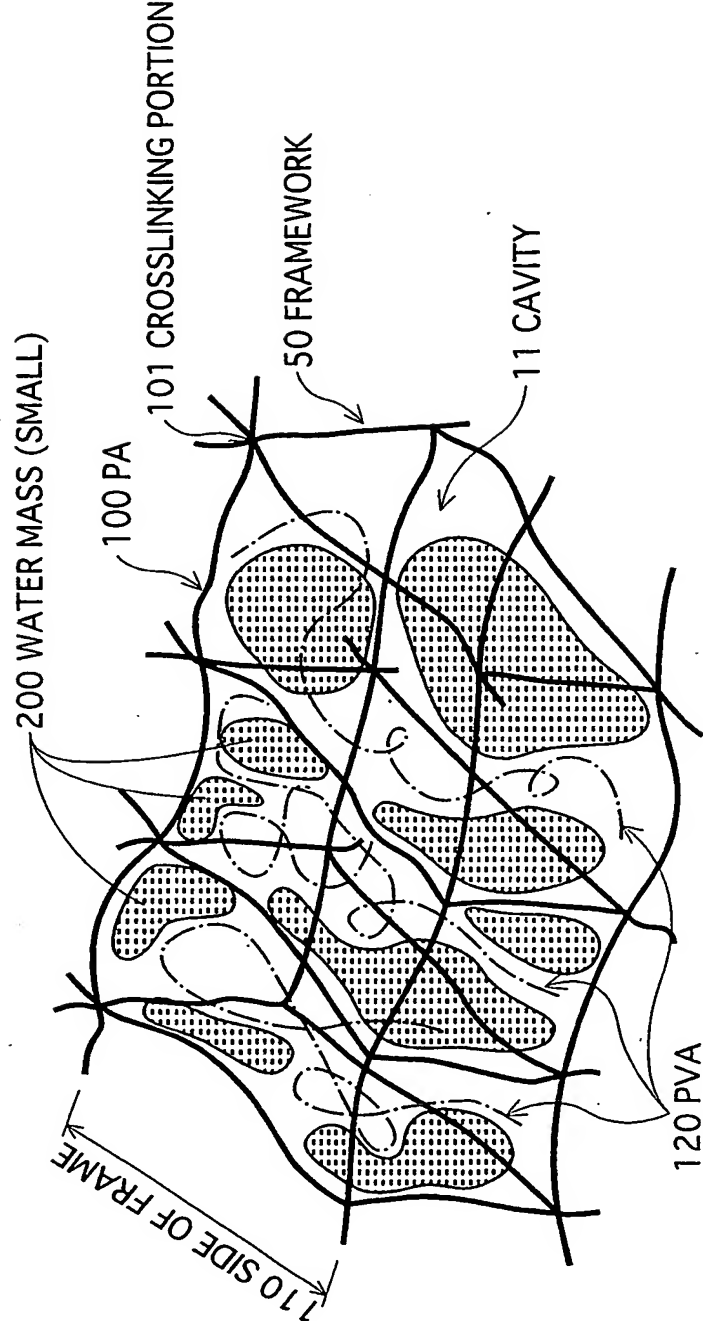
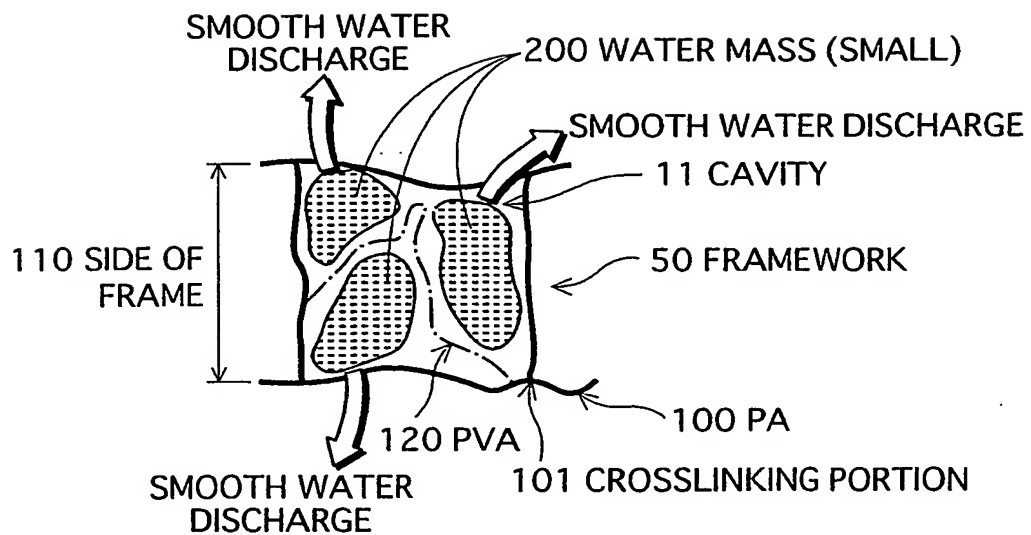


FIG.4



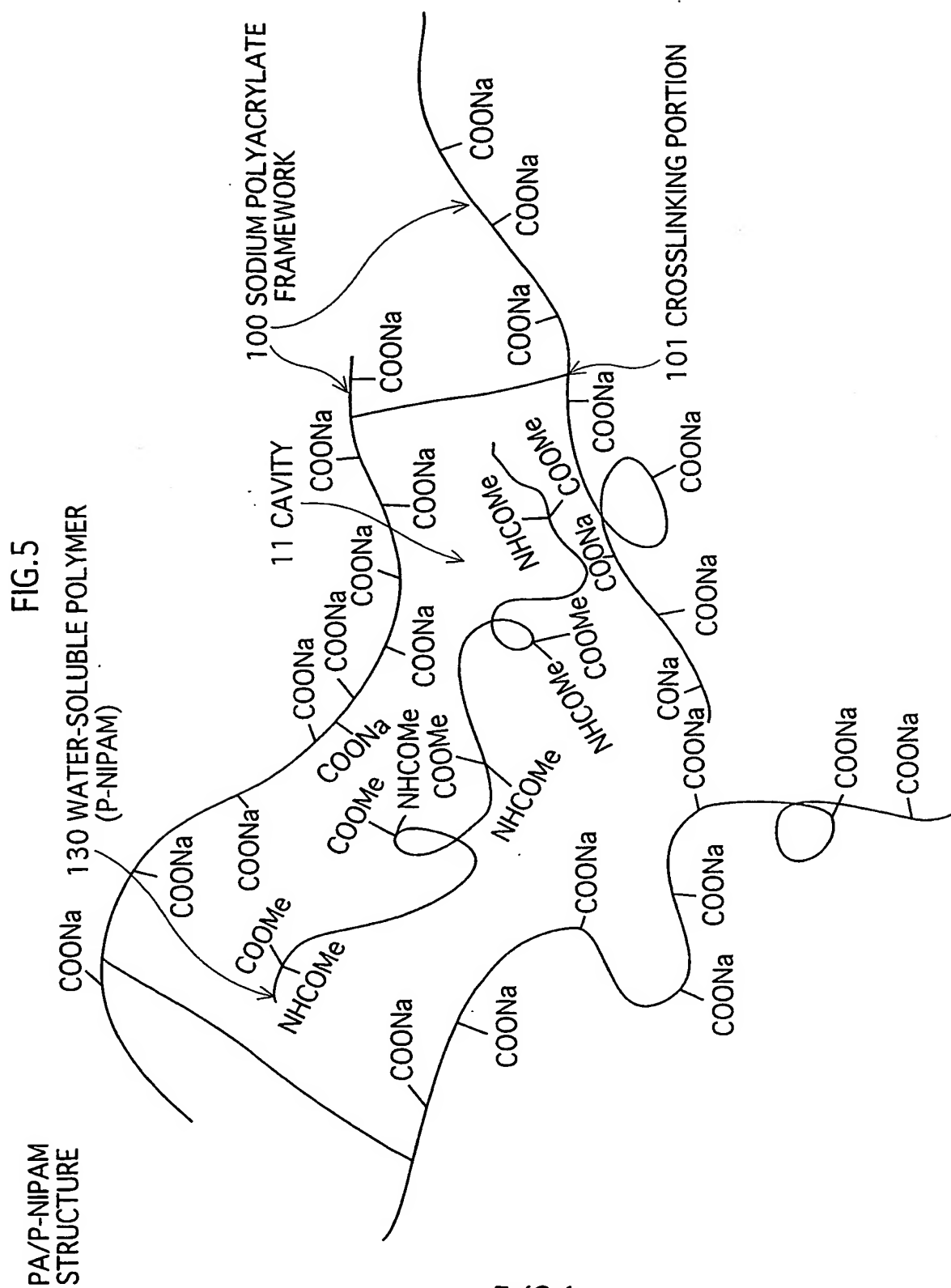


FIG.6

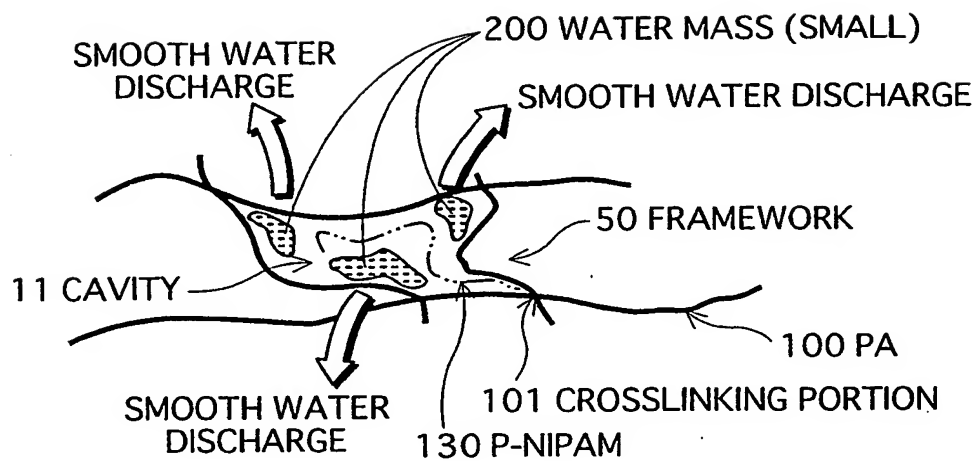


FIG.7

Changes in Weight (g) after Filtration

| Sample | Elapsed Time (hour) |       |       |       |       |       |       |       |       |       |       |       |
|--------|---------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|        | Tare Weight         | 0     | 13    | 25    | 62    | 74    | 86    | 95    | 110   | 134   | 159   | 183   |
| A      | 55.5                | 97.96 | 92.36 | 87.43 | 79.19 | 76.19 | 71.89 | 68.78 | 66.04 | 60.86 | 56.25 | 55.61 |
| B      | 56.01               | 94.78 | 90.2  | 84.82 | 75.55 | 72.43 | 69.14 | 65.9  | 63.59 | 59.98 | 56.8  | 56.14 |
| C      | 55.82               | 94.82 | 89.39 | 84.27 | 74.58 | 71.72 | 67.92 | 64.84 | 62.38 | 59.18 | 55.97 | 55.95 |
| D      | 56.0                | 96.21 | 91.57 | 86.14 | 75.69 | 72.7  | 69.25 | 65.26 | 62.76 | 59.29 | 56.14 | 56.12 |
| E      | 56.82               | 94.06 | 88.75 | 83.19 | 73.08 | 70.08 | 66.06 | 62.96 | 60.85 | 58.15 | 56.95 | 56.95 |

FIG.8

Amount of Weight Change (g)

| Sample | Elapsed Time (hour) |       |       |       |       |       |       |       |      |      |      |
|--------|---------------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|
|        | 0                   | 13    | 25    | 62    | 74    | 86    | 95    | 110   | 134  | 159  | 183  |
| A      | 42.46               | 36.86 | 31.93 | 23.69 | 20.69 | 16.39 | 13.28 | 10.54 | 5.36 | 0.75 | 0.11 |
| B      | 38.77               | 34.19 | 28.81 | 19.54 | 16.42 | 13.13 | 9.89  | 7.58  | 3.97 | 0.79 | 0.13 |
| C      | 39.0                | 33.57 | 28.45 | 18.76 | 15.9  | 12.1  | 9.02  | 6.56  | 3.36 | 0.15 | 0.13 |
| D      | 40.21               | 35.57 | 30.14 | 19.69 | 16.7  | 13.25 | 9.26  | 6.76  | 3.29 | 0.14 | 0.12 |
| E      | 37.24               | 31.93 | 26.37 | 16.26 | 13.26 | 9.24  | 6.14  | 4.03  | 1.33 | 0.13 | 0.13 |



FIG. 9

### Changes in Weight (g) after Filtration

| Sample | Elapsed Time (hour) |        |        |        |        |       |       |
|--------|---------------------|--------|--------|--------|--------|-------|-------|
|        | Tare Weight         | 0      | 9      | 46     | 60     | 94    | 118   |
| X      | 55.5                | 126.89 | 120.71 | 107.16 | 102.59 | 93.35 | 86.68 |
| Y      | 55.83               | 120.89 | 116.9  | 104.19 | 99.32  | 87.9  | 81.24 |

FIG.10

Amount of Weight Change (g)

| Sample | Elapsed Time (hour) |       |       |       |       |
|--------|---------------------|-------|-------|-------|-------|
|        | 0                   | 9     | 46    | 60    | 94    |
| X      | 71.39               | 65.21 | 51.66 | 47.09 | 37.85 |
| Y      | 65.06               | 61.07 | 48.36 | 43.49 | 32.07 |
|        |                     |       |       |       | 25.41 |

FIG.11

Changes in Weight (g) after Filtration

| Sample | Elapsed Time (hour) |       |       |
|--------|---------------------|-------|-------|
|        | Tare Weight         | 0     | 35    |
| x      | 56.82               | 59.73 | 57.18 |
| y      | 56                  | 60.37 | 56.74 |

FIG.12

Amount of Weight Change (g)

| Sample | Elapsed Time (hour) |      |
|--------|---------------------|------|
|        | 0                   | 35   |
| x      | 2.91                | 0.36 |
| y      | 4.37                | 0.74 |

FIG.13

Amount of Water Absorption after Drying Period of 35 Hours

| Sample | Amount of Water and Elapsed Time (hour) |                      |              |                      |
|--------|---|----------------------|--------------|----------------------|
|        | Water added                             | Absorption condition | 1-hour later | Additional water     |
| x      | 10 mL                                   | 70% absorbed         | 95% absorbed | 10 mL                |
| y      | 10 mL                                   | 100% absorbed        | -            | 10 mL                |
|        |   |                      |              | Absorption condition |
|        |   |                      |              | No absorption        |
|        |   |                      |              | 90% absorbed         |

FIG.14

Amount of Water Absorption after Drying Period of 1 Week

| Sample | Amount of Water and Elapsed Time (hour) |                 |              |
|--------|---|-----------------|--------------|
|        | Water added                             | 20-min later    | 1-hour later |
| x      | 10 mL                                   | 20-30% absorbed | 90% absorbed |
| y      | 10 mL                                   | 80% absorbed    | 95% absorbed |

FIG.15

Amount of Water Absorption after Drying Period of 1 Month

| Sample | Amount of Water and Elapsed Time (hour) |              |                      |
|--------|---|--------------|----------------------|
|        | Water added                             | 20-min later | 30-min later         |
| x      | 5 mL                                    | 50% absorbed | nearly 100% absorbed |
| y      | 5 mL                                    | 80% absorbed | 95% absorbed         |

FIG.16

Changes in Weight (g) after Filtration

| Sample | Elapsed Time (hour) |       |       |       |       |       |       |       |  |
|--------|---------------------|-------|-------|-------|-------|-------|-------|-------|--|
|        | Tare Weight         | 0     | 18    | 19    | 20    | 21    | 69    | 90    |  |
| a      | 52.92               |       | 56.12 | 56.07 | 55.97 | 55.87 |       | 53.65 |  |
| b      | 54.32               | 57.06 |       |       |       |       | 55.1  |       |  |
| c      | 52.76               |       | 54.56 | 54.5  | 54.43 | 54.37 |       | 53.55 |  |
| c'     | 54.24               | 56.25 |       |       |       |       | 54.72 |       |  |
| d      | 53.1                |       | 54.05 | 53.99 | 53.93 | 53.87 |       | 53.56 |  |
| e      | 53.56               |       | 57.8  | 57.7  | 57.47 | 57.24 |       | 54.93 |  |



FIG.17

Amount of Weight Change (g)

| Sample | Elapsed Time (hour) |      |      |      |      |      |      |  |
|--------|---------------------|------|------|------|------|------|------|--|
|        | 0                   | 18   | 19   | 20   | 21   | 69   | 90   |  |
| a      |                     | 3.2  | 3.15 | 3.05 | 2.95 |      | 0.73 |  |
| b      | 2.74                |      |      |      |      | 0.78 |      |  |
| c      |                     | 1.8  | 1.74 | 1.67 | 1.61 |      | 0.79 |  |
| c'     | 2.01                |      |      |      |      | 0.48 |      |  |
| d      |                     | 0.95 | 0.89 | 0.83 | 0.77 |      | 0.46 |  |
| e      |                     | 4.24 | 4.14 | 3.91 | 3.68 |      | 1.37 |  |

FIG.18

Amount of Water Absorption after Dried

| Sample | Elapsed Time (hour)              |  |       |       |       |       |       |       |       |       |
|--------|----------------------------------|--|-------|-------|-------|-------|-------|-------|-------|-------|
|        | 20-min after 5<br>mL water added | Immediately<br>after water<br>absorption | 1     | 2     | 3     | 4     | 5     | 6     | 24    | 42    |
| a      | 70% absorbed                     | 57.5                                     | 57.32 | 57.21 | 57.07 | 56.94 | 56.86 | 56.78 | 55.04 | 53.83 |
| b      | 70% absorbed                     | 58.41                                    | 58.26 | 58.18 | 58.08 | 57.93 | 57.83 | 57.74 | 56.21 | 55.05 |
| c      | 50% absorbed                     | 56.65                                    | 56.47 | 56.4  | 56.29 | 56.15 | 56.07 | 55.98 | 54.34 | 53.48 |
| c'     | 70% absorbed                     | 63.73                                    | 63.52 | 63.38 | 63.18 | 62.95 | 62.77 | 62.57 | 59.79 | 56.75 |
| d      | 60% absorbed                     | 57.43                                    | 57.24 | 57.12 | 57.01 | 56.88 | 56.79 | 56.68 | 55.05 | 53.64 |
| e      | 70% absorbed                     | 59.04                                    | 58.87 | 58.65 | 58.46 | 58.28 | 58.14 | 58.03 | 55.91 | 54.73 |

FIG.19

Amount of Weight Change (g)

| Sample | Elapsed Time (hour) |      |      |      |
|--------|---------------------|------|------|------|
|        | 0                   | 6    | 24   | 42   |
| a      | 4.58                | 3.86 | 2.12 | 0.91 |
| b      | 4.09                | 3.42 | 1.89 | 0.73 |
| c      | 3.89                | 3.22 | 1.58 | 0.72 |
| c'     | 9.49                | 8.33 | 5.55 | 2.51 |
| d      | 4.33                | 3.58 | 1.95 | 0.54 |
| e      | 5.48                | 4.47 | 2.35 | 1.17 |

FIG.20

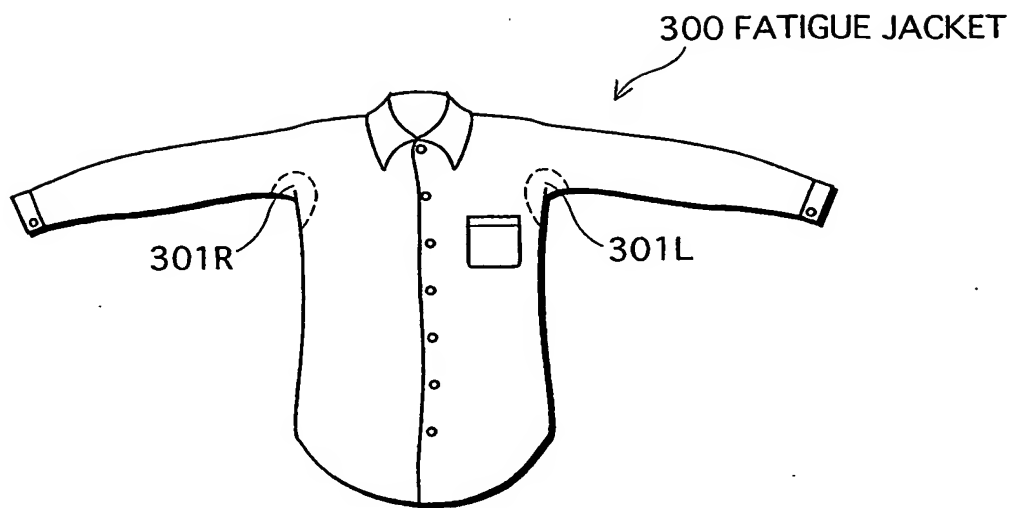


FIG.21

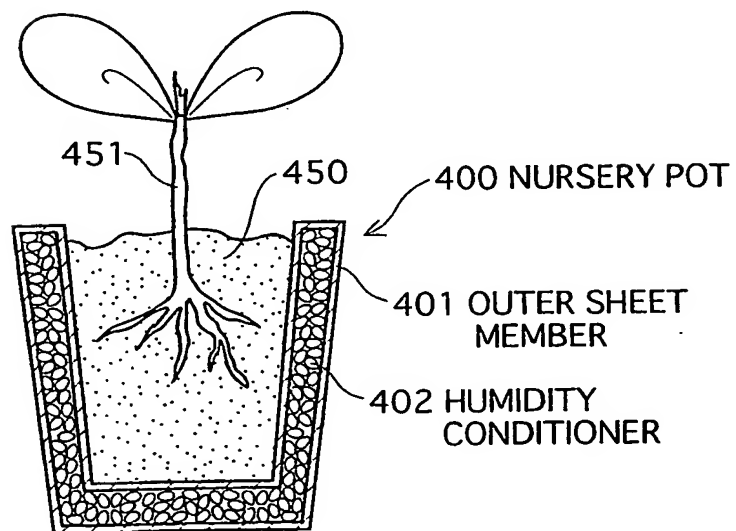


FIG.22

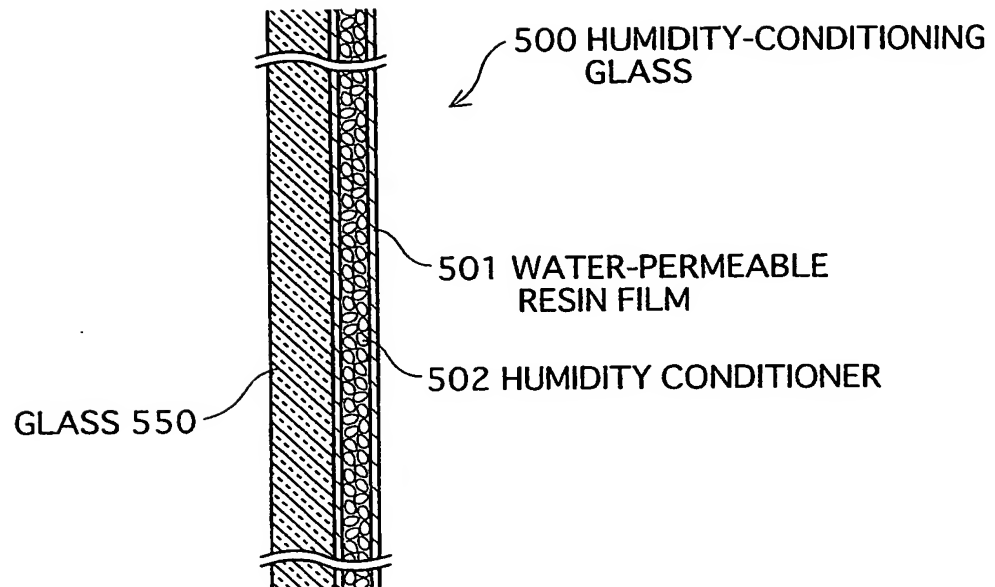


FIG.23

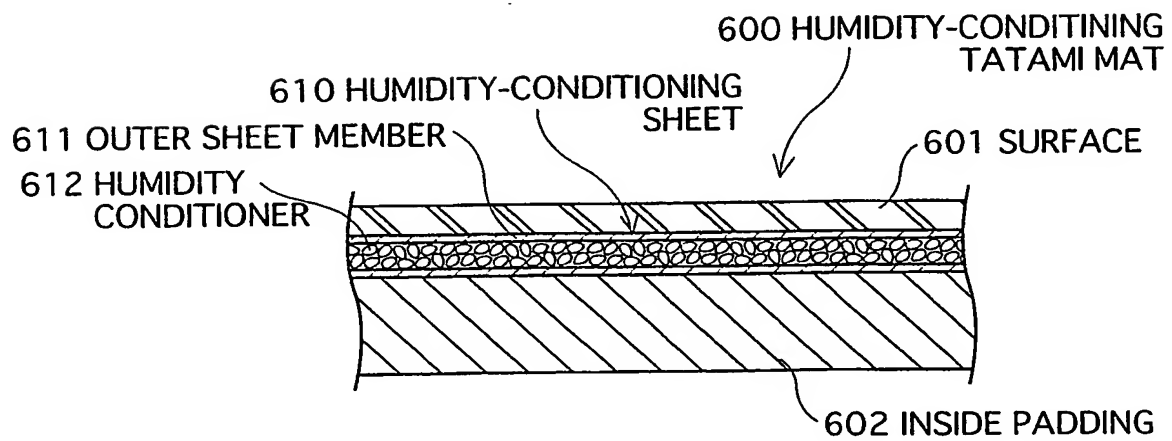


FIG.24A

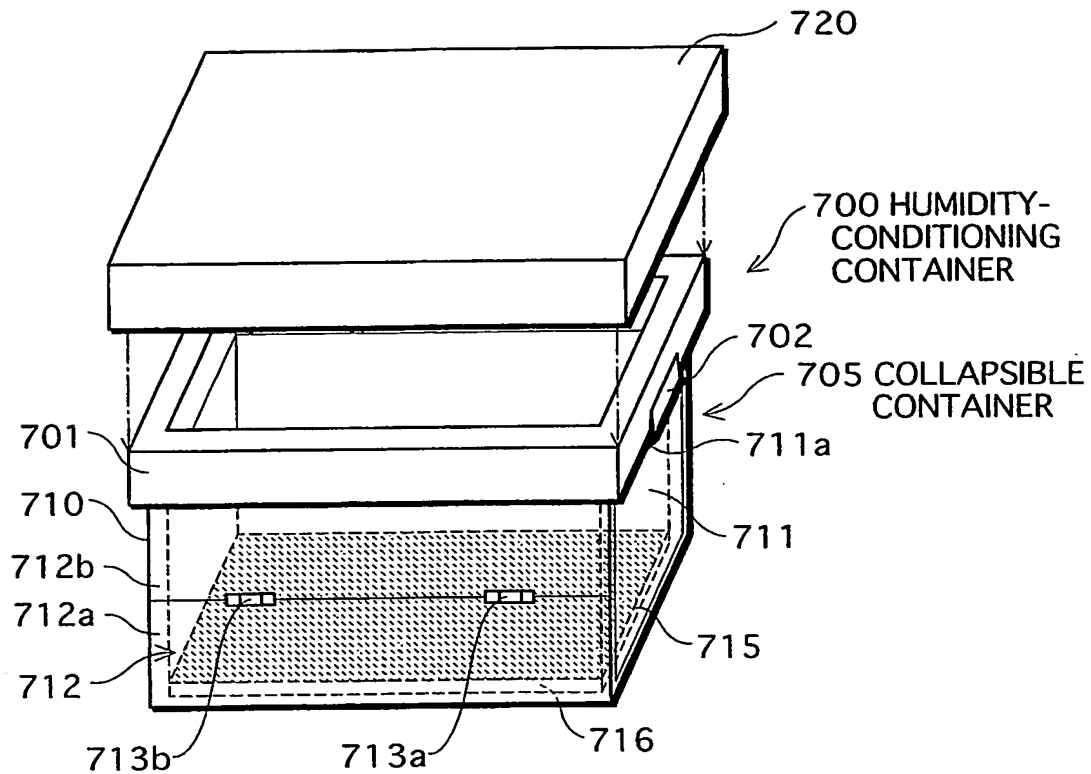


FIG.24B

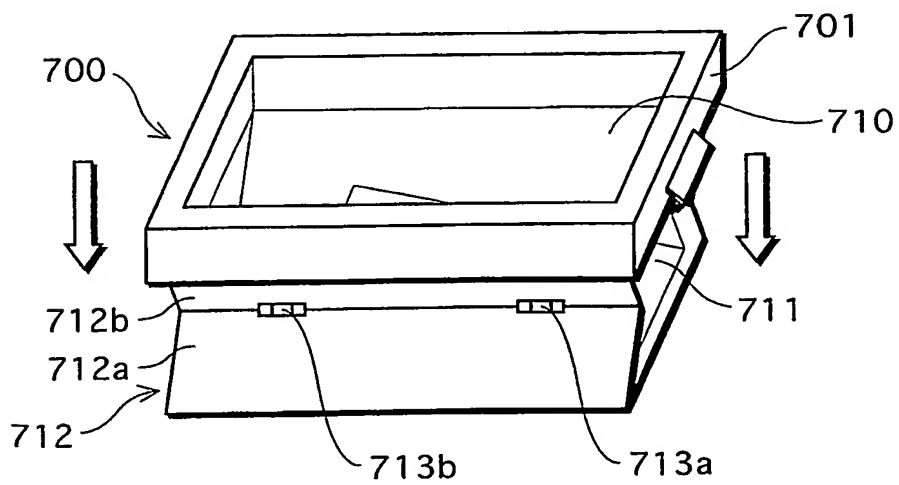


FIG.25A

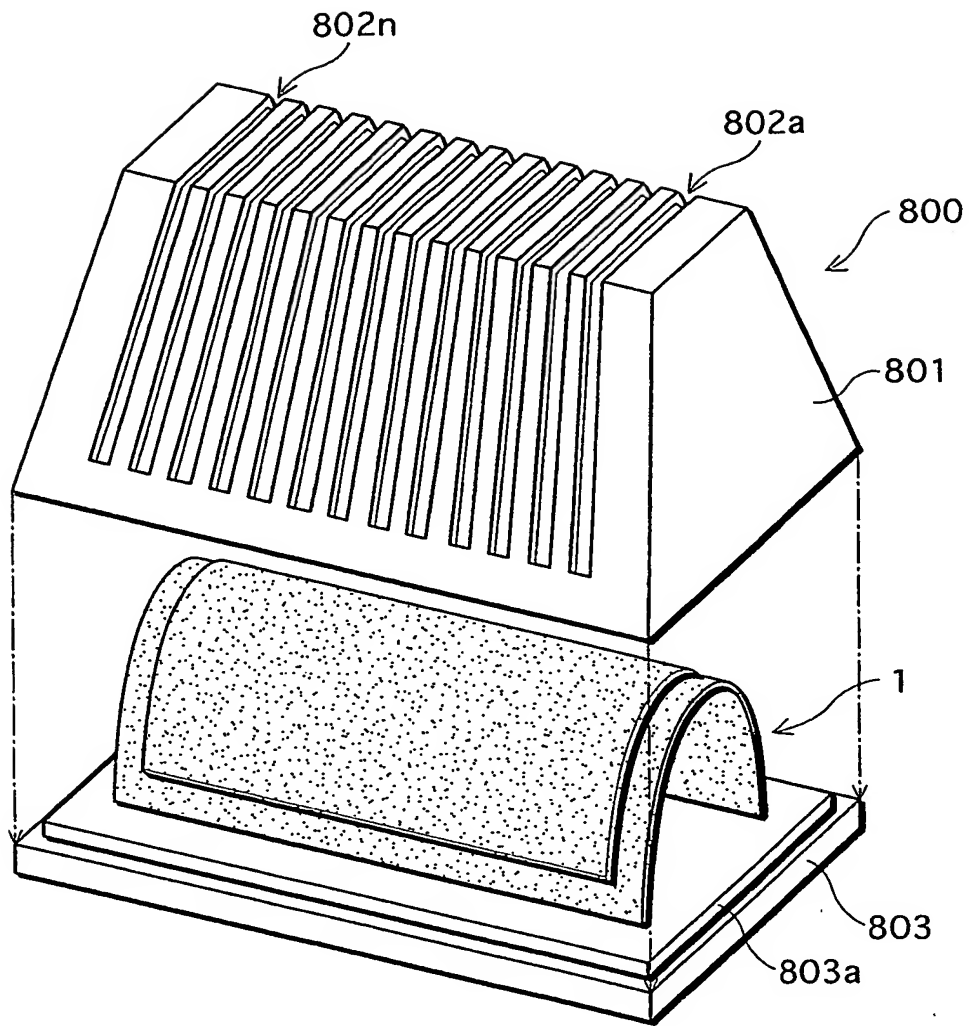


FIG.25B

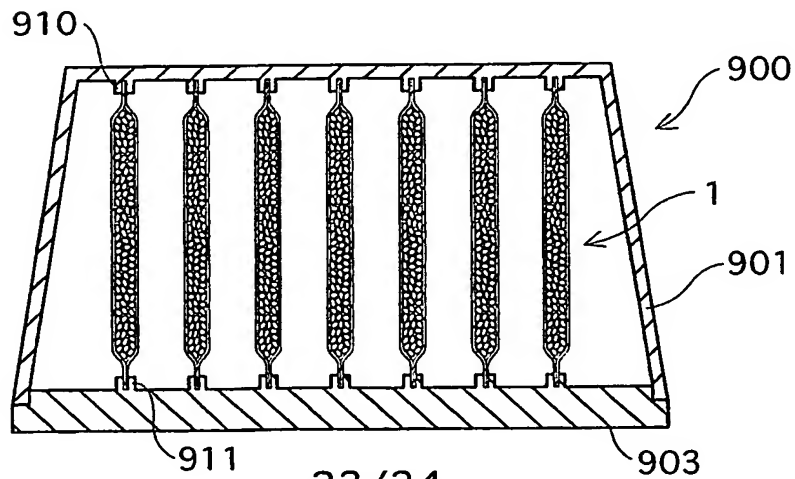


FIG.26A

## STRUCTURE OF CONVENTIONAL ABSORBENT MATERIAL

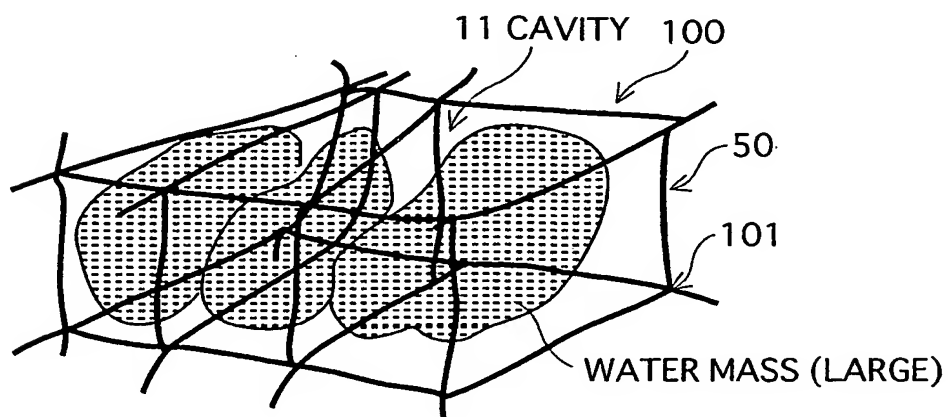


FIG.26B

DIFFICULT TO DISCHARGE WATER

